

## WHAT IS CLAIMED IS:

- 1 1. A muscle strengthening and rehabilitation apparatus,  
 2 comprising:  
 3 a first surface for receiving at least one extremity; and *Beam*  
 4 a generally hemi-ellipsoidal second surface <sup>(20)</sup> for contacting a support  
 5 surface, wherein the second surface allows for pivotal movement of the extremity  
 6 in any direction, and the radius of curvature of the movement varies depending upon  
 7 the direction the extremity is pivoted. *case shape*
- 1 2. The muscle strengthening and rehabilitation apparatus of  
 2 claim 1, wherein the first surface is generally flat and elliptical, having a major  
 3 diameter and a minor diameter. *case*
- 1 3. The muscle strengthening and rehabilitation apparatus of  
 2 claim 2, wherein a thickness is defined as the distance from the first surface to the  
 3 second surface measured along a line approximately normal to the first surface and  
 4 passing through the intersection of the major and minor diameters, and wherein the  
 5 length of the major diameter is about 13.5 inches, the length of the minor diameter  
 6 is about 6.0 inches, and the thickness is about 3.0 inches.
- 1 4. The muscle strengthening and rehabilitation apparatus of  
 2 claim 1, wherein the apparatus comprises a one-piece polyethylene material. *case*
- 1 5. The muscle strengthening and rehabilitation apparatus of claim  
 2 1, wherein the second surface further comprises a flat area allowing the apparatus  
 3 to remain stationary with the first surface oriented upward when the apparatus is not  
 4 in use.
- 1 6. The muscle strengthening and rehabilitation apparatus of claim  
 2 1, wherein the second surface further comprises a generally flat, circumferential  
 3 band disposed adjacent to the first surface.

1                   7.     The muscle strengthening and rehabilitation apparatus of  
2 claim 1, further comprising a plate attached to the first surface.

1                   8.     A one-piece muscle exercise apparatus, comprising:  
2 an upper surface for receiving a user's extremity; and  
3 a convex lower surface for contacting a support surface, the lower  
4 surface having a plurality of different radii allowing the extremity to pivot about the  
5 lower surface in any direction, such that exercises utilizing the different radii can  
6 be performed without reorienting the extremity on the upper surface.

1                   9.     The muscle exercise apparatus of claim 8, wherein the upper  
2 surface is generally flat and elliptical, and the lower surface is substantially hemi-  
3 ellipsoidal.

1                   10.    The muscle exercise apparatus of claim 8, wherein the  
2 apparatus comprises a foam material having a density greater than about 2.5 pounds  
3 per cubic foot.

1                   11.    The muscle exercise apparatus of claim 8, further comprising  
2 a plate attached to the upper surface.

1                   12.    A muscle strengthening and rehabilitation apparatus,  
2 comprising:  
3 a unitary polyethylene foam structure having a density greater than  
4 about 2.5 pounds per cubic foot, wherein the foam structure has a generally flat first  
5 surface for receiving at least one extremity, the first surface having a length of  
6 approximately 13.5 inches, and a substantially hemi-ellipsoidal second surface for  
7 contacting a support surface and creating a contact point thereon,  
8 wherein pivotal movement of the extremity changes the position of  
9 the contact point to allow for movement in any direction, and the radius of curvature  
10 of the movement varies depending upon the direction the extremity is pivoted.

1                   13.    The muscle strengthening and rehabilitation apparatus of  
2   claim 12, wherein the first surface is generally elliptical, having a major diameter  
3   and a minor diameter.

1                   14.    The muscle strengthening and rehabilitation apparatus of  
2   claim 13, wherein a thickness is defined as the distance from the first surface to the  
3   second surface measured along a line approximately normal to the first surface and  
4   passing through the intersection of the major and minor diameters, and wherein the  
5   length of the minor diameter is about 6.0 inches and the thickness is about 3.0  
6   inches.

1                   15.    A method of muscle strengthening and rehabilitation,  
2   comprising:  
3                    providing an apparatus having a first surface and a generally hemi-  
4   ellipsoidal second surface;  
5                    disposing the apparatus between at least one extremity and a support  
6   surface, wherein the extremity contacts the first surface and the second surface  
7   contacts the support surface; and  
8                    pivotaly moving the extremity while it remains on the first surface,  
9   wherein the radius of curvature of the movement varies depending upon the  
10   direction the extremity is pivoted.

1                   16.    The method of claim 15, wherein disposing the apparatus  
2   comprises placing at least one foot on the first surface, and placing the second  
3   surface in contact with a wall.

1                   17.    The method of claim 15, wherein disposing the apparatus  
2   comprises placing at least one foot on the first surface, and placing the second  
3   surface in contact with a floor.

1                   18.    The method of claim 15, wherein disposing the apparatus  
2   comprises placing at least one hand on the first surface, and placing the second  
3   surface in contact with a wall.

1                   19.    The method of claim 15, wherein disposing the apparatus  
2 comprises placing at least one hand on the first surface, and placing the second  
3 surface in contact with a floor.

1                   20.    A method of increasing proprioception, comprising:  
2                   providing an apparatus with a first surface and a generally hemi-  
3 ellipsoidal second surface;  
4                   disposing the apparatus between at least one of a user's feet and a  
5 support surface, wherein the user's foot contacts the first surface, and the second  
6 surface contacts the support surface; and  
7                   shifting at least a portion of the user's weight to the foot on the first  
8 surface, such that the user must at least partially balance on the apparatus.

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